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THE GEESE MARKET IN POLAND

Key words: geese, the biggest producers, export, import, Poland

Abstract. The aim of the study was to show changes in the volume of production, foreign trade and the prices of geese in Poland against the backdrop of world production, along with the presentation of new trends. The most important producer of geese in the world was China, whose production reached 95% of world production in recent years. Poland remains second in the ranking (with the production of approx. 30,996 tons, which accounted for 1.2% of world production in 2016), and is followed by countries such as Egypt (1.06%) and Hungary (1.02%). Prices of goose meat were the highest of all poultry species and, compared to chickens, they were higher, ranging from 60% in 2005 to 170% in 2017. In Poland, production was export-oriented. Starting from 2012, interest in goose meat on the domestic market has increased, and consumption reached a level of 40% in the period between 2012-2013. Production in the coming years will probably increase due to the advantages of goose meat, as well as due to the acquisition of extremely valued down and feathers.

Introduction

Global meat production is systematically growing, and the highest growth rate is observed in the production of poultry meat. Global meat production amounted to 71.30 million tons in 1961 and increased more than four-fold to 311.4 million tons in 2013. During this time, poultry production increased the most, over twelve-fold, reaching an amount of 108700 tons in 2013 [Utnik-Banaś 2016a]. The share of poultry meat in the total meat structure was 35%, pork – approx. 37%, and beef – approx. 21%. Chicken (88.5%) had the largest share in the poultry species structure in the world, followed by turkeys (5%), ducks (4%) and geese 2.5%) [Faostat 2018]. Total meat production amounted to 4,300,000 tons in 2015, which meant a 5% increase compared to the previous year [Rynek Mięsa 2016]. The production of poultry meat in Poland amounted to 1988000 tons in 2015, pork – 1,836,000 tons, and beef – 476,000 tons. With the consumption of approx. 76 kg of meat as a whole, the consumption of beef and mutton decreased, while poultry meat consumption increased and exceeded 28 kg, with the consumption of chicken (87.17%) and turkey meat (5.83%) prevailing in this group, whilst the share of waterfowl meat a mere (6.93%), and for the most part being duck meat (4.21%).

Following Poland’s accession to EU structures, there was quite a dynamic growth in poultry production, in particular, due to the increase in domestic demand and exports [Utnik-Banaś 2016b]. Poland is an important producer of geese in the world. Currently, the largest producers of geese in the world are China and Egypt, while in Europe - Poland and Hungary. It is estimated that, currently, the most common goose in Poland is the White Kołuda goose, accounting for approx. 95% of the national population, while the remaining 5% are conservation herds of native varieties and conservation herds of foreign origin. In the structure of poultry livestock production, the total share of geese is 1.5%.

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Breeding poultry has a very long history. The goose was domesticated in Europe and China approx. 3000 years ago. The ancient Greeks and Romans kept these birds mainly for the purpose of sacrificing them during religious rites. The first mention of geese appeared in Homer’s literature in the 8th century BC. In 390 BC, the famous Capitoline Geese warned the Romans against the attack of the Gauls. Geese have been present in Poland for a long time, and the production of geese flourished in the 19th century, when 3.5 million live animals were sold annually on the Warsaw Commodities Exchange. Historically, goose was rarely put on the table, due to the high value of goose providing feathers, which were a valuable product. Initially, geese were kept for valuable down and feathers, allowing people to survive the winter, and for the advantages of goose meat. According to custom, goose meat (usually traditionally baked with apples) was served from the Feast of St. Marcin (November 11), during Advent, until the end of the carnival. A valuable product is feathers used in the clothing industry for the production of down jackets, comforters, quilts, and pillows.

The production of cheap food based on an industrial organization was successful in the production of broiler chickens and turkeys. In the case of waterfowl: ducks and geese, the breeding is conducted in a semi-intensive system, with relatively small herds, produced for meat, feathers or as decorative poultry on agritourism farms, with a large share of green forage in breeding. The rearing of geese in parental and slaughter stocks should be carried out with up to approx. 150-300 livestock units. The specialization of farms, however, has lead to an increase in the number of livestock units in the herd (up to 1000-3000 livestock units), which is contrary to the nature of geese, which are unique in many respects compared to other species used by humans (this production is very seasonal, and, traditionally, geese are raised in smaller herds).

The purpose of the work was to show changes in the volume of production, foreign trade and prices of geese in Poland against the backdrop of the largest producers in the world.

Material and methodology of the research

The Faostat database was used to obtain data on the global production of geese for the years 1961-2016 as well as exports and imports for the years 2004-2013. For Polish production, data for the years 1961-2016 were obtained, while for foreign trade – the data since 2004. Information on the price level of live geese, ducks, turkeys and broiler chickens comes from the Integrated Agricultural Market Information System (2018) and cover the years 2005-2017. Due to the seasonal nature of the purchase of geese, prices were given for October of a given calendar year for all types of poultry. The data was presented in a tabular form and in figures, along with their interpretation.

Products obtained from rearing and breeding geese

Goose meat is a meat with pro-health properties, which results from the method of production. Geese are raised in a traditional way, they spend time in the open air, and, in the last weeks, they are fed with oats – cereals with valuable nutritional properties. Geese are not fed industrial feed with artificial colors and chemicals. Goose is the most calorific poultry meat; it contains 339 kcal of energy per 100 g. For comparison, turkey meat contains 129 kcal/100 g, and chicken broiler meat – 158 kcal/100 g. Goose meat is rich in wholesome protein. Meat of young oat-fed geese contains 23% protein, has a low cholesterol content, 50-83 mg/100g and approx. 4% fat. Goose fat contains a large amount of unsaturated fatty acids. Due to the high content of monounsaturated oleic acid (42%), linolic acid (20%), linolenic acid and arachidonic acid, it is classified as healthy animal fat. It has an advantageous composition of fats – it contains more omega-3 and omega-6 acids compared to other types of poultry meat. These acids have been proven to lower the level of bad cholesterol (LDL) in the blood and raise the level of good cholesterol (HDL). Goose fat contains lecithin and natural antioxidants. As a food it
can be recommended for people with heart and blood circulation problems. In addition, goose meat contains natural active vitamins, such as A, D3, E and K1, vitamins from group B and vitamin K2. It contains a lot of mineral elements: zinc, phosphorus, potassium and iron. Despite these advantages, a contemporary Polish person consumes approx. 60 g of goose meat annually [Buzała et al. 2014]. Valuable products also obtained from geese are down and feathers. According to experts, down from the Koluda goose is the best in the world, and is appreciated even by the Japanese. The quality and value of down is due to its structure, size, staple length and elasticity, which translates into excellent thermal insulation, and down is light, resilient, flexible and does not get clogged [Herbut 2018].

Production of geese in Poland and globally

Global production of live geese increased in the analyzed years 1961-2016 (fig. 1).

In 1961, the global production of geese reached a level of 149,760 tons and increased moderately to the level of 325,120 tons in 1985. From 1985 to 1995, the most rapid increase in production was observed. A level of one million tons (1,051,850 tons) was achieved in 1994, and the doubling of production took place after a decade – in 2005 (2,064,600 tons). Production continued to grow dynamically, increasing 1.2-fold in the next decade of 2005-2015, and amounted to 2,547,130 tons (2015). Undoubtedly, the largest producer of goose and goose meat in the world remains China (tab. 1) with production amounting to approx. 2,411,800 tons in 2016, which accounted for almost 95% of global production.

Table 1. Global production of geese in 2016

<table>
<thead>
<tr>
<th>Countries</th>
<th>Production</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>2,411,829</td>
<td>94.86</td>
</tr>
<tr>
<td>Poland</td>
<td>30,996</td>
<td>1.22</td>
</tr>
<tr>
<td>Egypt</td>
<td>26,894</td>
<td>1.06</td>
</tr>
<tr>
<td>Hungary</td>
<td>25,856</td>
<td>1.02</td>
</tr>
<tr>
<td>Others</td>
<td>47,055</td>
<td>1.85</td>
</tr>
<tr>
<td>Total</td>
<td>2,542,630</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: own research
Conservation herds include old breeds that are characterized by good health, are adapted to environmental conditions in semi-intensive farming and use farm fodder (including green forage) well. The meat of native birds of regional varieties is characterized by low fatness and fine fiber structure. Carcasses of these geese are usually well muscled and shaped, in addition, these geese are characterized by very good feather and down quality. The Polish oat-fed goose, genetically refined at the Institute of Animal Production – PIB in Kołuda Wielka, is appreciated by consumers due to its high quality meat and taste values, which is the result of, among others, feeding these geese with oat, a large share of green forage, in the last three weeks of fattening. The oat-fed goose is raised for at least 112 days of age (16-17 weeks of fattening). Currently, the rearing period is reduced to ten-nine weeks, as a niche market has developed for the delicate meat of young geese (the so-called “green goose”).

In the 1960s, the geese production volume in Poland was constant and amounted to approx. 14,000 tons (fig. 2). During this period, Poland was third in the world in goose farming, after China and Hungary [Faostat 2018]. Starting from 1972, the production of geese in Poland began to decline to 10,000 tons in 1981, to the lowest level of 5,000 tons in 1988, and 5,500 tons in 1997, with 6,900 tons in 2001, which, due to the simultaneous increase in the production of other poultry species, gave a 1.0% share in the structure. At that time, production collapsed as a result of the introduction of the Act of 21 August 1997 on the protection of animals, introducing a ban on fattening geese and ducks for foie gras, which resulted in the liquidation of many herds of animals, farms and plants specializing in the slaughter of aquatic animals. Since 2003, the situation on the goose meat market has stabilized, and production has reached a level of approx. 10,000 tons. Production began to increase following our country’s accession to the EU structures in 2004, reaching production levels of 18,400 tons in the years 2004-2011, which, however, only slightly increased the share of geese to 1.1% in the structure of poultry meat and gave Poland fourth place – after China, Egypt and Hungary. In subsequent years, the production of goose grew dynamically and amounted to approx. 30,000 tons (from 27,500 tons in 2012 to 30,900 tons in 2016), which was due to the promotion of goose meat thanks to the Act of 22 May 2009 on agri-food promotion funds (the Poultry Meat Promotion Fund was established). The goose production volume in Poland increased, while its share in global production decreased (fig. 1). In 1961-2016, Poland’s share in global goose production declined from 9.3% in 1961 to 1.2% in 2016.

According to the data presented in figure 2, most of the production was destined for export, with only a small share of internal consumption. The consumption of goose meat in Poland was approx. 700 tons, which constituted approx. 10% of the produced meat; this meat was considered a luxury product, for special occasions.

The situation has changed over the last five years. The support for local initiatives promoting and introducing branded and ecological products of high food value, made from geese from domestic herd stocks, especially in the voivodeships with the largest national production, deserves

![Figure 2. Geese production, export and import in 2004-2013](Source: own research based on the Faostat database)
encouragement. The Kuyavian-Pomeranian Province and the Pomeranian Voivodeship are the leading regions in geese and geese-meat production [Życie Regionów 2016].

Production has begun to grow significantly since 2012, amounting to 27,564 tons in 2012 and 30,898 tons in 2013. Starting from 2012, interest in goose meat on the domestic market has increased, and consumption amounted to 41.4% in 2013 and 39.3% in 2013. Geese have been imported to Poland in very small quantities, from the highest level in 2006 (1.207 tons) to approx. 195 kg in 2013 (fig. 3).

The most common direction of Polish goose export was Germany, where 81% of sales volume was directed in 2013, Hong Kong (8%), France (5%) and the Czech Republic (fig. 3). The vast majority of production is directed to foreign markets: goose meat exports to Germany reach 18,000-20,000 tons annually. Smaller quantities are also sold to Switzerland, Denmark and Great Britain. Production in Poland is very export-oriented, similarly to Hungary. The meat of oat-fed geese, which is mature for culinary use, goes to Germany. Until recently, mainly whole goose carcasses were exported (80%). Recently, the assortment has changed: oat-fed goose in parts, i.e. breast with bone, breast without bone, legs and carcasses of very young goose (broilers) are exported in largest amounts. According to Szilvia Molnár [2016], chilled frozen products, including fresh livers, are exported from Hungary, while products exported from Poland include mainly frozen carcasses and other parts of frozen goose.

Obtaining high quality goose meat is associated with high costs of rearing, amounting to PLN 48 using standard technology (with a large amount of green forage) or PLN 59 per 1 kg using a limited amount of green forage and an increased content of concentrated feed per one unit [Badowksi et al. 2014]. In the structure of total costs of goose rearing, the costs of feeding (74%) and chicks (17%) are predominant, while approx. 3-4% are the costs of energy and veterinary care, as well as water supply and other costs. According to these authors, the profitability ratio was 115% with standard nutrition and 102.7% with nutrition envisaging limitation of forage, respectively, meaning that the production of goose was profitable. In the production system, they can be raised using concentrated feed with a large share of green forage, which affects the high quality of meat; hence, from an economic point of view, this type of rearing is highly recommended. In Poland, oats are usually used in the last weeks of fattening, while in China – rye and vetch are also used [Romanov 1999].

Geese livestock prices ranged from PLN 4.54 per kg in October 2005 to PLN 9.20 per kg in October 2012 and 2017 (fig. 4). Goose prices were the highest of all poultry species and, compared to chickens, they were higher, ranging from 60% in 2005 to 170% in 2017. Compared with other poultry, livestock geese prices were subject to much greater changes over time.

Poland is one of the largest exporters of down and feathers globally, taking third place after Russia and China [Herbut 2018], with an export volume of 100 tons worth 9.6 million euros. Goose down and feathers are extremely appreciated by recipients from Japan, but also from Germany, Italy, the United States, England and Thailand.
Summary

Undoubtedly, in recent years, the largest producer of geese in the world production has been China, whose production reached 95% in the global supply structure. Poland remained second in the ranking with production of approx. 30,996 tons (1.22%) in 2016, and among other countries: Egypt and Hungary. Production has begun to grow significantly since 2012, amounting to 27,564 tons in 2012 and 30,898 tons in 2013. Starting from 2012, interest in goose meat on the domestic market has increased, and consumption amounted to 41.4% in 2012 and 39.3% in 2013. Goose prices were the highest of all poultry species and, compared to chickens, they were higher, ranging from 60% in 2005 to 170% in 2017.

The production of geese is very seasonal, but due to the promotion of this meat (especially in autumn), its consumption is increasing; currently it is approx. 60 g per year per person. In the coming years, production will most likely increase, also for the acquisition of goose down and feathers, highly appreciated on the domestic and global market.

Bibliography

Streszczenie

Celem opracowania jest przedstawienie zmian wielkości produkcji, handlu zagranicznego oraz cen gęsi w Polsce na tle produkcji światowej, z ukazaniem nowych trendów. Najważniejszym producentem gęsi na świecie były Chiny, których produkcja produkcji w ostatnich latach sięgła 95% światowej. Na drugim miejscu pozostaje Polska (z produkcją około 30 996 t, co dawało 1,2% światowej produkcji w 2016 roku), a spośród pozostałych krajów należy wymienić Egipt (1,06%) i Węgry (1,02%). Ceny gęsiny były najwyższe z wszystkich gatunków drobiu i w porównaniu z kurczętami były wyższe od 60% w 2005 roku do 170% w 2017 roku. W Polsce produkcja była ukierunkowana na eksport. Począwszy od 2012 roku wzrosło zainteresowanie gęsiną na rynku krajowym, a spożycie sięgało do ok. 40% w latach 2012-2013. Produkcja w najbliższych latach będzie prawdopodobnie wzrastała, z uwagi na walory mięsa gęsiego, a także dla pozyskiwania niezwykle cenionego puchu i pierza.